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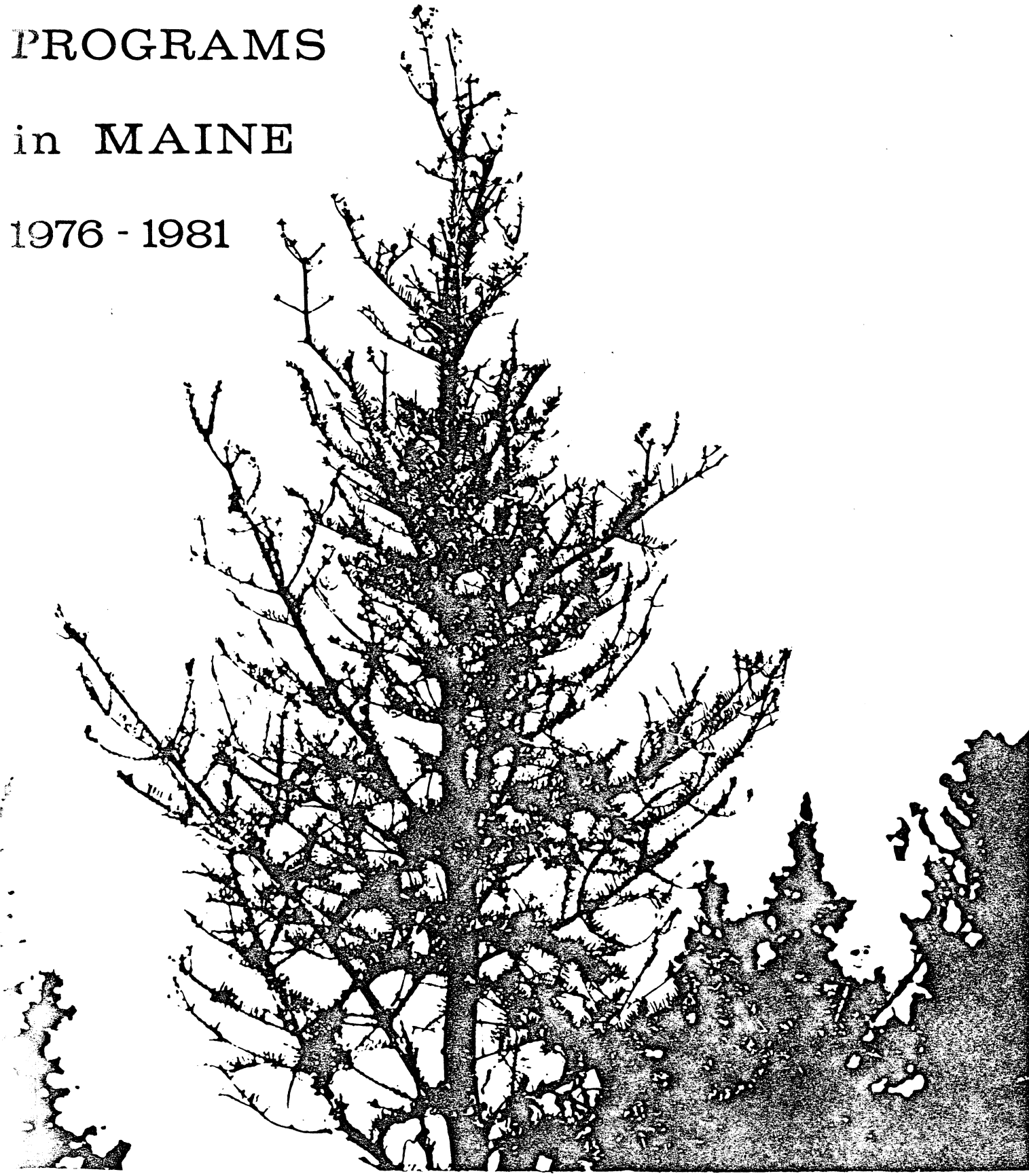
SPRUCE BUDWORM PROGRAMS in MAINE 1976 - 1981



MAINE DEPARTMENT OF CONSERVATION - MAINE FOREST SERVICE

STATE OF MAINE
DEPARTMENT OF CONSERVATION
AUGUSTA, MAINE 04333

JAMES B. LONGLEY
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PREFACE

Control of Maine's Spruce Budworm infestation has recently been one of the largest and most controversial programs of the Maine Forest Service. The enactment of the 1976 Budworm Suppression Act provides a comprehensive long-term framework for dealing with budworm infestations. This publication briefly describes the major activities now planned or under way within the mandate of the 1976 Act and the Department of Conservation's Six-year plan for budworm programs. We hope you will find it useful and informative.

John S. Walker
Director,
Maine Forest Service

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I.

INTRODUCTION

This publication presents an overview of activities planned for the years 1976-1981 in response to Maine's spruce budworm epidemic. As of 1976, more than 150 million acres in Eastern Canada and Maine were infested with spruce budworm. Spruce and fir on large acreages have been heavily damaged by repeated defoliation. The seriousness of the situation prompted the State of Maine to undertake, in cooperation with the U.S. Forest Service and forest landowners, a 3.5 million acre spray project in spring 1976. This was the largest forest insect spray operation ever conducted in the United States.

The need to deal with the current outbreak and to develop a long-term budworm management policy became obvious in the early 1970's. In response, the Maine Department of Conservation developed a six-year plan to guide the state's efforts. In March 1976, the Legislature passed a new law providing for staffing, financing, and tax incentives to give effect to the six-year plan. This publication reviews plans for implementing that program. Major sections describe the budworm problem, the Budworm Suppression Act, program objectives, the cooperative approach, resource management activities, research and development work, and the coordination of these efforts.

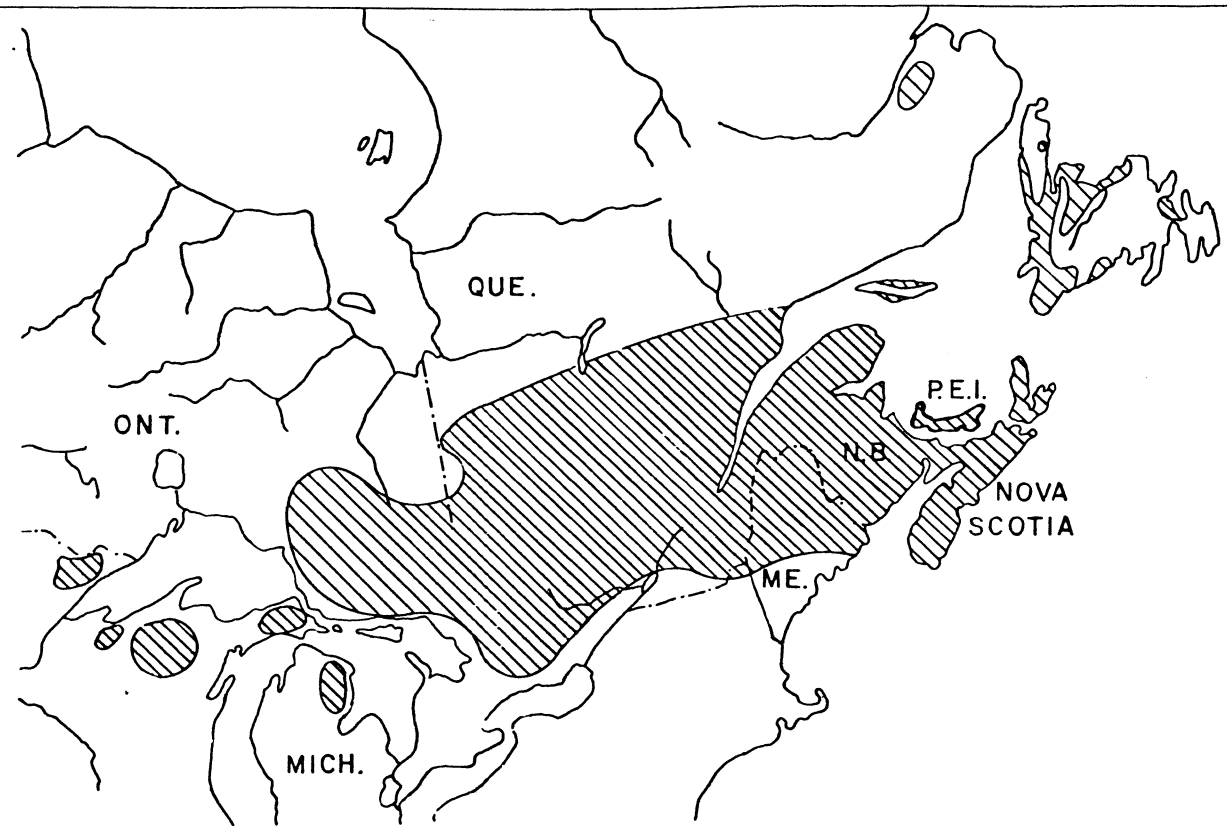
II.

THE SPRUCE BUDWORM PROBLEM

The spruce budworm has long been an inhabitant of Maine forests. The insect is most destructive in its larval stages, when it feeds on the needles of spruce and fir trees, causing them to turn brown and die. A healthy tree may well survive the initial budworm attack, but repeated attacks weaken and destroy one of Maine's most valuable resources - its spruce and fir trees.

In an effort to save this resource and abate the budworm attack, the State from time to time has sprayed areas heavily infested by budworm since 1954. The rationale for spraying, however, has been to reduce budworm feeding and save trees for the spray year. Total eradication of the budworm is environmentally and scientifically unfeasible, and as a result the budworm population has continued to grow.

From 1971 to 1976, the budworm population grew to epidemic proportions, and an estimated 7 to 8 million acres of Maine spruce-fir forest were infested. Such an extensive infestation, if left unchecked, would seriously affect the State's economy and the jobs of the 18,000 people who rely directly on Maine's spruce-fir forest for their livelihood.



Area of heavy spruce budworm infestation in eastern Canada and Northeast U. S. A.

Mid-1970's

The spraying program to control the budworm was expanded accordingly, leading up to the record 3.5 million acres sprayed in 1976. This spray program, up by over 1 million acres from 1975's 2.2 million acre project, was 96% effective in reducing the budworm population. However, the pre-spray population level was so high that even a four percent residual population was sufficient to reinfest much of the area.

Through highly effective, spraying was also expensive costing a total of 9 million dollars, and consuming many manhours of work in 1976. Nor was the cost a onetime expenditure; several more spray projects may be required in order to deal with the current outbreak. Spray projects in the years ahead could also be more expensive if costs rise, and if shifts and increases in the budworm population occur. In light of this situation, the Legislature enacted the Budworm Suppression Act in an effort to develop an improved budworm management system.

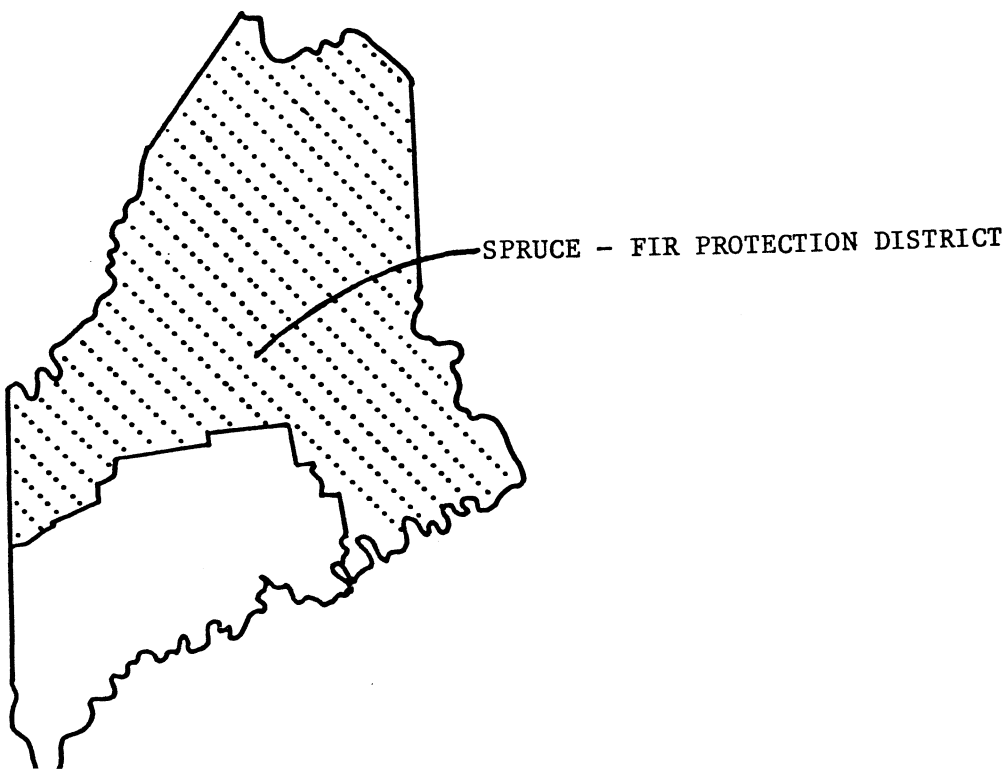
III.

THE MAINE SPRUCE BUDWORM SUPPRESSION ACT

Realizing the danger to the economic value of Maine's forests, the 107th Legislature passed an "Act Relating to the Suppression of the Spruce Budworm Epidemic" during its first special session in April of 1976. Because of the urgency of the problem and the need for immediate action, the measure was passed as an emergency law and took effect immediately.

The Act seeks to develop an integrated approach to budworm control rather than relying solely on spraying. The Forest Insect Manager, a fulltime position created by the Act, is responsible for developing this integrated approach, as well as being responsible for implementing all budworm related policies and programs.

A Spruce-Fir Protection District covering all softwood and mixed wood lands in northern and central Maine was established. This area approximates the natural boundaries of the spruce-fir timber type. The Act provides for meeting the landowner share of spray costs by an excise tax on softwood and mixed wood land in excess of 500 contiguous acres in the Spruce-Fir Protection District.



Silviculture is the art of managing forest communities for human purposes. The Act recognizes that by using appropriate silvicultural measures we can reduce fir composition of stands, maintain tree vigor and favor other stand characteristics that will reduce the impact of budworm outbreaks. The law provides tax incentives to promote beneficial silvicultural practices and also to promote the development of new markets for budworm damaged wood.

In order to encourage silvicultural practices which will reduce susceptibility to future infestation, the Act provides for the withdrawal from taxation and spraying of a contiguous parcel of at least 1,000 acres within the Spruce-fir Protection District provided it meets criteria for silvicultural treatment designation to be discussed later. The Act also allows owners of between 500 and 1000 budworm-infested areas within the Spruce-fir Protection District to automatically withdraw their land from the designated spray area and to receive excise tax exemption for such withdrawals. This exemption allows small landowners to conduct salvage operations as an alternative to spraying without being penalized for their share of the spray costs.

A further exemption encourages the development of new markets for the wood from infested trees in the designated spray area under certain conditions.

A Committee on Spruce-fir Silviculture is created by the Act to promulgate rules for silvicultural withdrawals designation, hear appeals and advise the Director of the Maine Forest Service on matters relating to the management of spruce and fir timberlands. The committee is composed of five citizens of the state, three of whom must be foresters knowledgeable in commercial forest land management.

Finally, the Act provides that the Department of Conservation may make grants of up to $100,000 a year for research on the development of forest management strategies, research on the development of new safer biological and chemical control measures, or both. Provision is also made for the development of uses and markets for spruce and fir timber.

The Act's major emphasis, then, is to promote a more integrated approach to budworm control through equitable tax treatment. In this way, it is hoped that the Act will achieve a long term program for budworm control extending well beyond its five-year mandate.

IV.

PROGRAM OBJECTIVE

The objective of the cooperative program is to protect forest resources in Maine's spruce-fir zone from damage by spruce budworm feeding. Resource management techniques employed are to be both economically and environmentally acceptable.

To achieve the objective, the following specific activities, which will be discussed in detail later, are proposed:

1. Respond to the current outbreak using methods known to be effective, such as spraying and salvage.

2. Implement a research and development program designed to provide by 1981:

   a. Improved prescriptions for the manipulation of spruce-fir stands to reduce susceptibility and vulnerability to budworm.
   b. Improved basis for economic appraisal of control alternatives.
   c. Improved techniques for population monitoring and stand hazard assessment.
   d. One direct control technique other than existing chemical insecticides available for operational use.

3. Encourage use of management techniques likely to reduce future budworm occurrence or damage. Efforts at development of new markets for damaged wood are included here.

V.

COOPERATIVE APPROACH

The Maine Department of Conservation through its Bureau of Forestry (commonly called the Maine Forest Service) has statutory responsibility for determining whether or not an emergency situation exists with respect to forest insects. The Department sets policies for dealing with the spruce budworm epidemic through administrative channels and by requesting appropriate legislation.

The Maine Forest Service contributes to the program in three areas.

The Entomology Division conducts annual surveys of budworm populations, defoliation, and tree condition to monitor changing insect levels and tree hazard. These surveys include visual aerial damage assessments, egg mass counts, monitoring of moth flights, overwintering samples, and spring larval counts. In October, the State Entomologist determines the biological need for control measures and submits recommendations to the Director of the Maine Forest Service. This recommendation, taken together with forest management objectives, relative benefit assessments and environmental considerations, forms the basis for making decisions regarding a cooperative spray project the following spring.

The Forest Management Division, through its service foresters, provides assistance to owners of small woodlands in determining the threat budworm poses to their property and helping to devise solutions. In addition, a forester has been made available to the program to administer the withdrawal and inclusion provisions of the Budworm Suppression Act which will be explained in the section on silvicultural practices.

The Marketing and Utilization Division has made active contributions to assist landowners with salvage operations. This assistance includes preparing marketing guides, publishing lists of mills using spruce and fir, and conducting market research.

The Maine Forest Service is guided by the Department's six-year action plan. The plan emphasizes maintaining timber resources to sustain industrial capacity, promoting maximum sustained yield of valuable timber,

using the most cost-effective modes of control, and equitably distributing any losses caused by the epidemic.

Because of the complexity of control programs and the diversity of interest in the spruce budworm problem, a cooperative approach to problem-solving is essential. The Maine Legislature recognized this and created the position of Forest Insect Manager within the Maine Forest Service.

The Forest Insect Manager (FIM) administers the provisions of the 1976 Act, coordinates research, and manages spray projects as needed. He reports to the Bureau Director and coordinates Maine's budworm efforts with those of federal agencies, other states, and the Canadian agencies concerned. He also works closely with landowners. The FIM is responsible, then, for coordinating the resources of state and Federal agencies, the academic community and the private sector in a cooperative effort.

The United States Forest Service of the U. S. Department of Agriculture plays an important role in budworm management programs. Through its research branch, it provides scientific and technical studies of insect populations, silvicultural control measures, and related subjects.

The State and Private Forestry Branch, Northeastern Area, provides technical and financial support for insect and disease surveys, spray projects, and pilot testing of newly developed detection, evaluation and control measures. The Methods Application Group in Davis, California, provides up-to-date technical support in the areas of spray application technology, spray assessment, and project planning systems. Forest Service cooperative insect control activities are authorized by the 1947 Forest Pest Control Act (PL 110), as amended.

The University of Maine at Orono, School of Forest Resources, plays a major role in research relating to the budworm program. In addition, the School cooperates in information and education activities as well as advice on policy and research.

The newly created Cooperative Forestry Research Unit, funded by landowner contributions, plans a program of research in the broad areas of silviculture, forest protection, and marketing and utilization. Some of this work will deal directly with budworm problems.

The University's Department of Entomology provides scientific advice and technical assistance, in addition to performing contract research for state and federal agencies and private firms.

Maine's forest landowners in the spruce-fir zone range from individual camp owners to corporations with million-acre holdings. Landowners help the Maine Forest Service to obtain data on forest type maps, silvicultural plans and surveys needed in population assessments and in spray project planning. In recent years, they have been bearing an increasing share of the cost of spray projects. Landowners play a key role in the implementation of forest management programs, though their scheduling and roadbuilding, harvesting, and salvage cutting. Through contributions of research funds to the University, and by making land available for experimentation, owners assist in promoting research about forest management, economics, and genetics. Some owners are financing substantial research efforts of their own.

VI.

RESOURCE MANAGEMENT ACTIVITIES

The action programs designed to deal with the budworm epidemic and its effects include spraying, silvicultural practices, salvage and pre-salvage cuttings, and market development.

Aerial Spraying

Aerial spraying against spruce budworm was attempted in the 1920's and 30's, but did not become operational for large areas until the late 1940's, when DDT and suitable aircraft became available. Maine first sprayed for budworm in 1954, when these techniques were in their infancy. Subsequent spraying projects are shown in the table.

Summary of Aerial Spraying

for Spruce Budworm Control in Maine

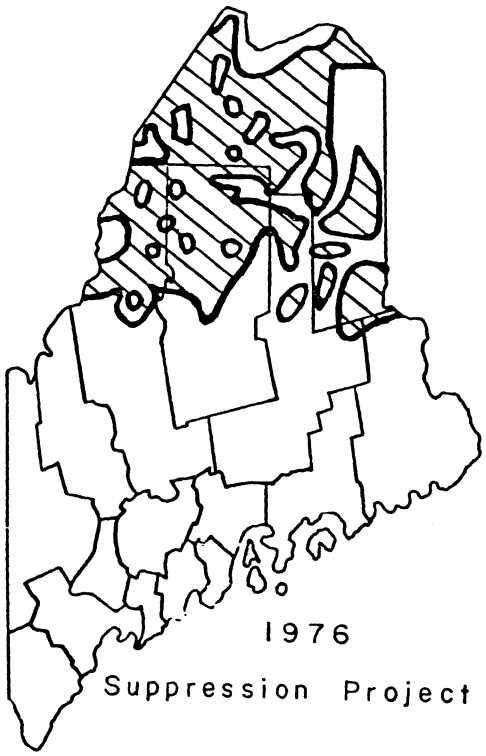
YEAR	INSECTICIDE	ACRES TREATED
1954	DDT	21,000
1958	DDT	302,000
1960	DDT	217,000
1961	DDT	53,000
1963	DDT	479,000
1964	DDT	58,100
1967	DDT	98,162
1970	Accothion (Fenitrothion)	210,000
1972	Mexacarbate (Zectran^{R})	500,000
1973	Mexacarbate (Zectran^{R})	470,000
1974	Mexacarbate (Zectran^{R})	430,000
1975	Carbaryl (Sevin^{R})	496,445
	Fenitrothion (Sumithion^{R})	1,499,260
1976	Carbaryl (Sevin^{R})	3,500,000
	Trichlorfon (Dylox^{R})	20,000

It should be noted that of the 930,000 acres proposed for spraying in the 1977 project, only about 12% has previously been sprayed.

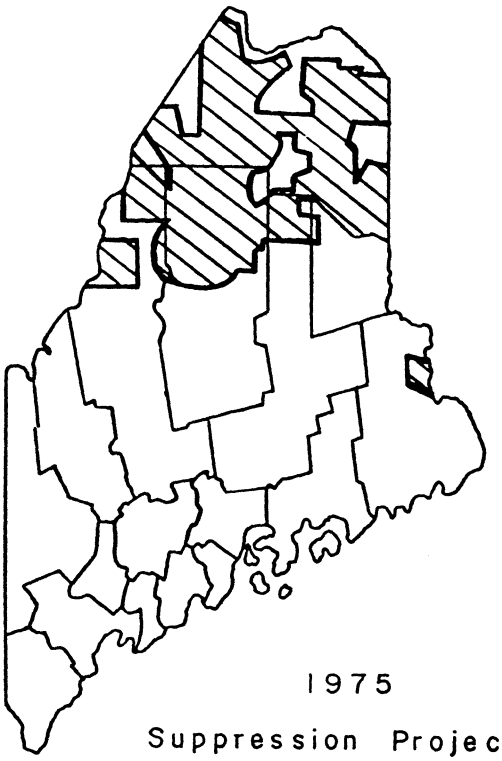
In the 1970's the Maine infestation spread rapidly, aided by moth dispersal over long distances. The large spray area required use of techniques new to Maine. This state's cooperative spray projects pioneered in the use of four-engine spray aircraft in the United States. This effort drew heavily on Canadian experience and required considerable effort on the part of aircraft contractors, guidance system suppliers, and state and federal agencies.

Spraying has been and is a controversial management practice. The use of DDT was discontinued in the late sixties when its environmental

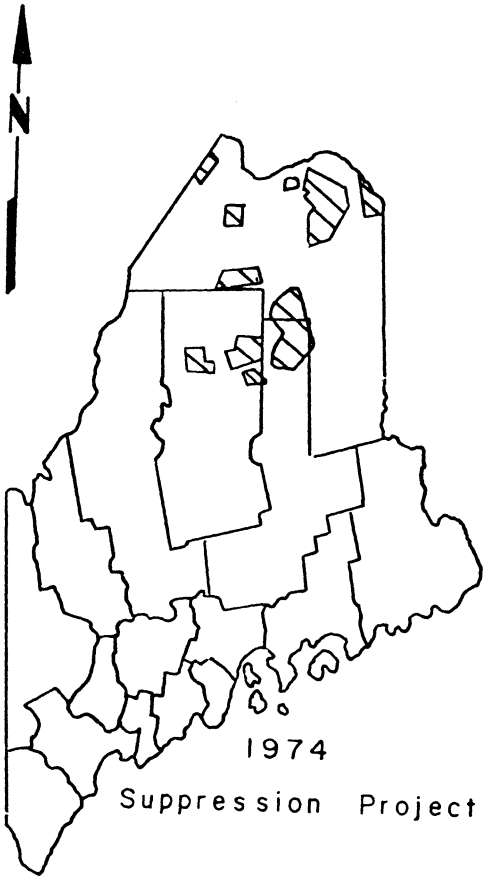
Maine Spruce Budworm
Suppression Projects 1972-1976



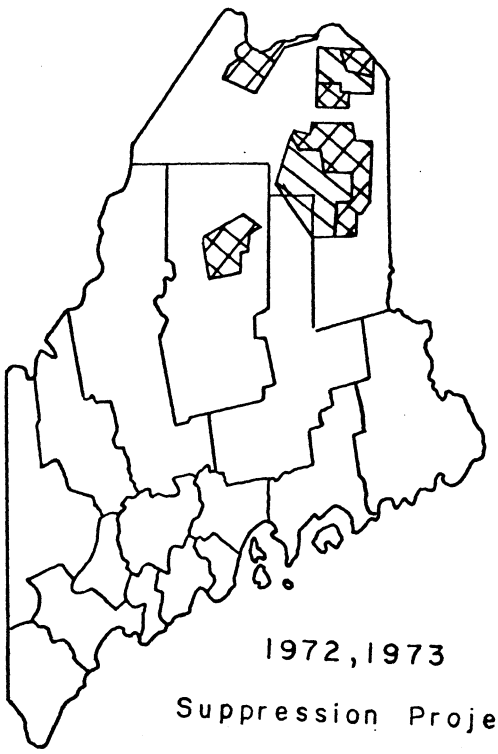
1976
Suppression Project



1975
Suppression Project



1974
Suppression Project



1972
1973

1972,1973
Suppression Project

impacts became apparent. Since then, several other chemicals have been applied, which are less persistent and which may be less toxic to nontarget species or far less persistent in the environment.

Insecticides suitable for use in Maine include Sevin 4-Oil[R], Dylox[R] Sumithion[R], and Orthene[R]. These insecticides are registered by the United States Environmental Protection Agency for use at specified dosages. The registration process assures that data on environmental and health effects are considered in permitting a given pesticide to be used.

Bacillus thuringiensis (Bt), a bacterial insecticide, has been widely tested but is not reliably effective against budworm.

Actual longterm protection benefits of spraying are difficult to assess, but spraying in Maine has helped to keep trees alive. While some experts argue that spraying merely prolongs the outbreak, most feel the outbreak will end only when the trees are dead and the budworm starves. In short, the potential losses that could result from not spraying outweigh the risks. Every recent spray project has included studies to monitor potential adverse environmental impacts.

The Maine Department of Human Services' Public Health Laboratory, the University of Maine, and the Department of Inland Fisheries and Wildlife have cooperated with the Department of Conservation to determine the levels of insecticide present in runoff fish and aquatic insects. Studies have also been made of the effects of spray programs on non-target insects and animals.

Nevertheless, the risk that repeated spraying may be required demands that all alternatives be fully explored. For this reason, silviculture, salvage, and market development are being encouraged.

Silvicultural Practices

Silvicultural techniques (forest stand manipulation) are an essential part of a long-term control strategy for budworm. Considerable uncertainty exists, however, on just what those practices should be. Most foresters agree that reduction of fir composition or age should be a major goal. With this in mind, many landowners have adopted cutting practices designed to reduce fir composition. Other questions, such as whether even-aged or uneven-aged management is preferable, or the role of stand isolation, remain in dispute. Because of the differing patterns in the forest, some stands are logically treated one way, others differently.

While silviculture is an important part of a long-term strategy, it is no substitute for other approaches in the short term. Since only a small percentage of the spruce-fir forest is harvested or treated in any one year, it would take several decades to conduct silivicultural operations over most of the forest. Even then, unpredictable large scale moth flights or outbreaks would require use of direct control through spraying.

Silvicultural practices must rely on landowner decisions as affected by available knowledge, existing technology for harvesting, and markets. To promote more rapid employment of silvicultural controls the 1976 Act

provided for a tax incentive through abatement of the budworm excise tax on lands qualifying for the Silvicultural Treatment Designation. The Silvicultural Treatment Designation provides an excise tax exemption until 1981 for tracts operated under an approved silvicultural strategy which meets criteria described in the Bureau's regulations.

By December, 1977, applications had been approved for designating more than 200,000 acres.

Rules setting forth conditions under which Silvicultural Treatment Designation will be granted were approved by the Committee on Spruce-fir Silviculture in 1976. These rules concentrate primarily on the reduction of the percentages of mature fir and the discouragement of fir monoculture. The committee, consisting of forestry and conservation leaders from around the State, consulted leading forest scientists and held public hearings before approving the rules. The rules allow for differing natural and operational conditions and represent the best blend of scientific knowledge and practical experience that could be achieved in the time allowed by law.

The silvicultural rules discussed here are a voluntary program. They offer a tax incentive to owners implementing specified management practices designed to reduce the vulnerability of forested areas to budworm. The practices are to reduce the amount of balsam fir, the budworm's preferred diet, in the future forest. Any choice of cutting methods is allowed as long as the fir composition standard is met.

Harvesting

Closely related to silvicultural methods are salvage and pre-salvage cuttings. Landowners are now reprogramming their cutting schedules to concentrate their wood harvest in stands that are heavily damaged, or are soon likely to be damaged, by budworm. This replanning can require substantial additional roadbuilding. Cutting in stands with high budworm populations can contribute significantly to control, since it will remove the food supply for overwintering larvae. Salvage cuts can therefore contribute to control as well as aid in preventing loss of timber values.

Market Development

Adequate markets for timber are essential to the accomplishment of the silvicultural and salvage activities. The major expansions in sawmill and pulpmill capacity now under way will assist these efforts significantly. The Maine Forest Service is also planning a series of market research efforts to help private industry bolster markets still further. In addition, a tax incentive is provided by the legislation, in the form of a New Market Withdrawal.

The purpose of this withdrawal is to recognize removal of infested timber as a control measure, and to promote market expansion. All new market withdrawals must be covered by an approved silvicultural plan.

VII.

RESEARCH AND DEVELOPMENT

The key to providing improved control is research. While budworm has been much studied, additional development efforts are needed to make promising control techniques suitable for operational use. Effective research and development in this field is a complex and risky endeavor, involving substantial commitments of personnel and funds, and careful planning and coordination. Four major goals are sought by the end of the current six-year program in 1981.

First, improved silvicultural prescriptions are required. There is currently wide diversity of opinion on which silvicultural techniques will minimize future budworm damage.

Second, it is necessary to find an improved basis for economic appraisal of control operations. Included in this will be better measurement of the relation between budworm feeding and actual loss of wood through mortality and growth loss.

Third, improved techniques for surveying budworm populations and assessing the hazard to infested stands are necessary.

Finally, at least one direct control technique other than existing chemical insecticides should be available for operational use.

Several agencies are cooperating in the research activities in support of these goals. In addition efforts are under way to develop new markets and uses for spruce and fir.

The U. S. Forest Service is making its major research commitment in the field of silviculture and insect population dynamics. At its Orono unit, an ongoing program in silviculture has been expanded to intensify efforts in spruce-fir silviculture and in adaptation of a computer model of budworm populations to Maine conditions. Results of this work can be expected to improve the basic knowledge needed for designing future control programs. In addition, pilot field testing of new control measures is carried out.

At the University of Maine, the Cooperative Forest Research Unit in the School of Forest Resources is currently planning a program of research aimed at gaining improved information for practical forest management. Some of the efforts involved with be directly related to the formulation of budworm control programs.

The School of Forest Resources and the Department of Entomology will continue to be major research contractors in cooperation with the State and the U. S. Forest Service. As in the past, staff members will be advisers in all stages of research and operational planning.

The Maine Forest Service administers a small research budget for developing improved control measures and for market development studies.

Current research funded under this program includes studies of budworm populations, larval dispersal, parasites, and alternative chemicals for spraying. Market studies also include development of a marketing guide for the spruce-fir region, a study of the economics of softwood sawmilling in Maine, and plans for a cooperative industrial development effort with other concerned state and federal agencies.

The Maine Forest Service is preparing an analysis of research priorities jointly with the U. S. Forest Service and the School of Forest Resources and the Department of Entomology. Existing research coordination groups, such as the Forest Resources Research Advisory Committee and the Budworm Research Advisory Committee will be consulted. This analysis will be the basis for research planning in future years.

As in the past, chemical companies will play a major role in R&D efforts to develop promising new control chemicals. They will field-test them to obtain the environmental and health effects data needed to support Environmental Protection Agency registration for use against budworm. This is a costly and time-consuming process which the Maine Forest Service intends to facilitate through cooperation with interested firms. In addition, research conducted by or sponsored by landowners on their own lands will continue to produce useful information.

VIII.

COORDINATION

Implementation of a long-term cooperative program for dealing with spruce budworm will require close cooperation among the major action agencies discussed in this document. In addition, it will require continuous contact with Canadian research and operational authorities.

Efforts are under way to maintain communication with the Maine Department of Inland Fisheries and Wildlife, Land Use Regulation Commission, Pesticides Control Board, and the Department of Environmental Protection. This communication will facilitate close environmental monitoring of spray projects plus coordination of control measures on land having special environmental significance.

Coordination will be carried out through the Maine Forest Service and the USDA Forest Service, State and Private Forestry. Continuous communication with interested parties will be maintained.

Coordination with Canadian authorities will be carried out through membership in the International Eastern Spruce Budworm Conference; This group consists of senior officials and scientists representing Maine, Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland, the Canadian Forest Service and the U. S. Forest Service.

Communication with the public will be accomplished through normal information and education channels. Public hearings will be held periodically on facets of the program having direct effects on the public. The Forest Insect Manager and the Division of Information and Education of the Department of Conservation maintain continous contact with groups representing the public on environmental matters.

CHAPTER 764

N ACT Relating to the Suppression of the Spruce Budworm Epidemic.

mergency preamble. Whereas, Acts of the Legislature do not become tive until 90 days after enactment unless enacted as emergncies; and

Whereas, a severe outbreak of spruce budworm exists in the forests of ne, threatening the destruction of one of Maine's outstanding natural and omic resources, its spruce-fir forest; and

Whereas, entomological data collected in Maine, Quebec and New Brunsk demonstrate that the spruce and fir acreage infested by budworm to a re degree has expanded substantially in each of the last 5 years and is y to continue to expand in each of the next 5 years, infesting more valu- land not presently infested; and

Whereas, presently more than 4,000,000 acres of spruce and fir are infested pruce budworm in epidemic amounts, and scientists and foresters estimate , without treatment, as much as 90% of the fir and 40% of the spruce in the infested area will die as a result of the infestation, and no less than 00 Maine workers depend directly on the spruce and fir products industry mployment and the State of Maine depends on the spruce and fir products stry and employment for no less than 16% of its total tax revenue; and commercial forest lands of this State, as defined by the Tree Growth Tax , and the operations thereupon, provide the vast preponderance of the loyment, product value and tax revenue attributable to the forests of ne; and

Whereas, in order to protect and preserve the spruce-fir forest resources of State of Maine from the ravages of the spruce budworm infestation, and eby enhance the growth and maintenance of forests, promote the stability orest-using industries and the employment and tax revenues associated ewith, reduce the substantial fire hazard created by dying and dead trees red or killed by the budworm, conserve forest cover on watersheds and ect recreational, wildlife and other values of forests, it shall be the policy he State of Maine to prevent, control and suppress epidemics of spruce worm; and

Whereas, any aerial application of insecticides must take place in late May early June in 1976 in order to be effective; and

Whereas, the following legislation is designed to achieve a long term pro- n for controlling timber losses from infestation, salvaging infested timber employing silvicultural measures to minimize as far as practicable the ts of future infestations; and

Whereas, in the judgment of the Legislature, these facts create an emer- y within the meaning of the Constitution of Maine and require the fol- ng legislation as immediately necessary for the preservation of the public e, health and safety; now, therefore,

it enacted by the People of the State of Maine, as follows:

Sec. 1. 12 MRSA § 520-B, last sentence, as enacted by PL 1971, c. 616, § 1, mended to read:

ormation contained in ~~said~~ such reports shall not be made public but shall available for the use of the State Tax Assessor pursuant to Title 36, chap- 105, subchapter II-A and Title 12, chapter 213, subchapter II-A.

ec. 2. 12 MRSA § 525 is enacted to read:

25. Inspection

ny forester, deputy warden or forest ranger under the direction of the ector may make such inspections and investigations in connection with lications or orders made pursuant to chapter 213, subchapter II-A, as the ector may authorize.

ec. 3. 12 MRSA c. 213, sub-c. II-A is enacted to read:

SUBCHAPTER II-A

SPRUCE BUDWORM SUPPRESSION ACT

010. Short title

This subchapter shall be known and may be cited as the "Maine Spruce dworm Suppression Act."

011. Legislative policy

The Legislature declares that it shall be the policy of the State of Maine to ertake reasonable measures to control and suppress infestations of spruce worm insects in the spruce and fir forests of the State during the years 5-1981, including such measures as the minimization and equitable dis- ution of the burden of losses attributable to budworm infestation, the maintenance of wood resources sufficient to permit the forest products industries of the State to operate as near to full production capacity as would be possible but for the existence of the budworm infestation, accomplishment of the maximum sustained yield harvest possible within a Maine forest comprised of the most valuable timber possible, the utilization of the most cost-effective methods of budworm protection and control, and the financing of the State share of suppression and control measures by the General Fund of the State to an extent commensurate with the public benefit accruing from a suppression and control program and by excise taxes on the privilege of owning and operating such forest land for the services of protection rendered to such forest lands to an extent commensurate with the benefits accruing to the owners of such lands from such a program.

§ 1012. Definitions

For the purposes of this subchapter, unless the context otherwise indicates, the following words shall have the following meanings.

1. Contiguous. "Contiguous" means in actual contact. Contiguous parcels of land are those which share a common boundary, whether acquired by one or more deeds. Roads, streams and natural features shall not be deemed to interrupt a boundary which would otherwise be common.

2. Forest land. "Forest land" means land in contiguous parcels which are subject to mandatory taxation pursuant to Title 36, chapter 105, subchapter II-A.

3. Hardwood. "Hardwood" means forest land on which maple, beach, birch, oak, elm, basswood, poplar and ash, singly or in combination, comprise 75% or more of the stocking.

4. Mixed wood. "Mixed wood" means forest land on which neither hardwood nor softwood comprise 75% of the stand, but are a combination of both.

5. New market. "New market" means a wood-processing plant which did not utilize budworm infested or damaged wood on or before January 1, 1976 or the physical expansion of an existing wood processing plant, which expansion did not utilize budworm infested or damaged wood on or before January 1, 1976. The volume of spruce and fir used by an expanded wood processing plant in any one year, shall have subtracted from such volume the average annual volume of spruce and fir utilized by that plant during the calendar years 1973-1975, to determine the volume which represents a new market.

6. Nonfederal share per acre. "Nonfederal share per acre" means the total amount of money raised from General Fund appropriations and excise tax revenues provided for the suppression and control of spruce budworm divided by the number of acres within the designated spray area.

7. Person. "Person" means any individual, partnership, joint venture, corporation or other legal entity, except any government or any agency, bureau or commission thereof.

8. Rebate. "Rebate" means a payment by the State back to a person subject to taxation pursuant to this subchapter.

9. Rule. "Rule" means a duly adopted regulation of the Director of the Bureau of Forestry of general applicability. Such rules shall have the force and effect of law.

10. Sawlog. "Sawlog" means a log suitable in size and quality for producing one or more of the following products: veneer, sawn boards and sawn timber.

11. Softwood. "Softwood" means forest land on which pine, spruce, fir, hemlock, cedar and larch, singly or in combination, comprise 75% or more of the stocking.

12. Spray project. "Spray project" means all operations connected with the application of insecticides or other materials against spruce budworms or bud moths within a single year.

13. Spruce budworm. "Spruce budworm" means the insects of the species known as choristoneura fumiferana, Clem., at any stage of its biological development.

14. Wood classification. "Wood classification" means the typing of forest land into the categories of hardwood, mixed wood and softwood.

§ 1013. Spruce Fir Forest Protection District

There is established a Spruce Fir Forest Protection District consisting of each of the municipalities and townships within the State in which the softwood forest cover is to a substantial extent composed of species of spruce and fir trees and wherein such spruce and fir is now, or may reasonably be expected to become, subject to infestation and destruction by spruce budworm insects. The district shall consist of the following municipalities and townships:

Aroostook County. All municipalities and townships;

Franklin County. All municipalities and townships north of a line formed by the southern and eastern boundaries of the following municipalities and townships: Kingfield, Salem Township, Phillips and Weld;

Hancock County. All municipalities and townships east of a line formed by the western boundaries of the following municipalities and townships: Tremont, Mount Desert, Bar Harbor, Trenton, Lamoine, Hancock, Township 8, S.D. and Mariaville;

Oxford County. All municipalities and townships north of a line formed by the southern and eastern boundaries of the following municipalities and townships: Roxbury, Andover, Newry and Township A, No. 1 (Riley);

Penobscot County. All municipalities and townships north of a line formed by the southern and western boundaries of the following municipalities: Clifton, Bradley, Old Town, Alton and Lagrange;

Piscataquis County All municipalities and townships;

Somerset County. All municipalities and townships north of a line formed by the southern boundaries of the following municipalities and townships: Brighton Plantation, Bingham, Concord Township and Township 2, R.1, B.K.P., W.K.R. (Lexington); and

Washington County. All municipalities and townships.

§ 1014. Funding

1. Advance budget planning. The Director of the Bureau of Forestry shall annually, prior to January 1st of each of the years 1977-1981, certify to the Bureau of Budget his estimate of the cost, if any, of the nonfederal share for the implementation of this Act for the calendar year following that legislative session. The Bureau of the Budget shall include this recommended amount in the Part I Budget, together with an estimate of the funds to be paid to the Budworm Suppression Fund pursuant to subsection 6. The Legislature shall annually, in its Part I Budget, determine the amount, if any, which shall be expended for this program and the manner in which such amount shall be funded. Such determination shall authorize the budworm suppression program provided for by this subchapter for such calendar year and shall supersede any requirements which may exist for the approval of this program by any other state agency. In the event that the director subsequently determines that the amount necessary to conduct the activities authorized by this subchapter in any calendar year exceeds the amount appropriated in the Part I Budget, he shall inform the Bureau of the Budget and it shall certify the additional amount necessary. Any such additional amount shall become a part of the Part II Budget, subject to increase, reduction or approval by the Legislature.

2. General Fund. On or before January 1, 1977, and on January 1st for the 4 years thereafter, the Commissioner of Conservation shall report in writing to the Legislature, recommendations of the department as to the percentage of the cost of the annual program for the control and suppression of spruce budworm which the Department of Conservation recommends to be paid out of the General Fund of the State and the percentage from excise or other tax funds during 1977 and 1978 in the first instance and thereafter for the calendar year following that Legislative Session, such percentages to be based upon the benefits to the State of Maine and to private landowners, respectively. Prior to making such recommendations, the commissioner shall hold a public hearing to provide opportunity for public comment on these matters. Money appropriated from the General Fund for such purposes shall be paid into the Budworm Suppression Fund hereinafter established.

3. Excise tax funds. Persons owning parcels of forest land, including persons claiming timber and grass rights in public reserved lands, which are classified as forest land pursuant to Title 36, chapter 105, subchapter II-A, of more than 500 acres within the Spruce Fir Forest Protection District, shall be subject to an excise tax on the privilege of owning and operating such parcels of forest land in 1976 and the 5 years thereafter, except as provided hereinafter or in the event the Legislature establishes an alternative method of taxation after 1976. In cases of divided ownership of such forest land, the persons owning or claiming timber rights shall be subject to such tax. The Legislature hereby finds that it would not be administratively feasible to apply this tax to smaller parcels of such forest land.

4. Budworm Suppression Fund. To accomplish the purposes of this subchapter, there is established a Budworm Suppression Fund. All income received by the State from the Government of the United States for spruce budworm programs shall be recorded on the books of the State in a separate account and shall be deposited with the Treasurer of State, to be credited to the Budworm Suppression Fund. All moneys credited to such fund shall be used by the Bureau of Forestry for research, control and suppression programs related to the spruce budworm in accordance with the provisions of this subchapter. So much of the money in this fund as may be necessary to pay the claims, accounts and lawful demands arising under this subchapter may be used to pay the same, and the Director of the Bureau of Forestry shall authorize the State Controller to draw his warrant therefor at any time. Any balance remaining shall continue from year to year as a fund available for the purposes set out in this subchapter and for no other purpose.

5. Disposition of funds. On December 31, 1981, or upon declaration of termination of the infestation as hereinafter provided, whichever occurs earlier, the Treasurer of State shall distribute any surplus remaining in the fund on the following basis and in the following order of priorities:

A. Payment of all debts and accounts outstanding;

B. Payment to the Government of the United States of all sums deposited in the fund and due thereto;

C. Payment to the General Fund of the State of Maine of a part of the remaining surplus on the basis that the proportion contributed out of the General Fund in 1981, or in the year immediately preceding the year of termination, as declared pursuant to section 1021, subsection 5, bears to the amount contributed pursuant to subsection 2 in the same year; and

D. Payment to each person subject to taxation pursuant to subsection 3 of a part of the remaining surplus on the basis that the proportion he has actually paid in 1981, or in the year immediately preceding the year of termination, bears to the total amount actually paid in pursuant to subsection 3 in the same year; provided, the treasurer shall pay amounts thus due which are less than $25 only upon the written application of such persons prior to January 1, 1982.

6. State property tax contribution. An amount equal to 1.5 mills multiplied by the state valuation of forest land, subject to taxation pursuant to Title 36, chapter 105, subchapter II-A, in the unorganized territory, shall be paid, on or before October 31st of the respective year, by the Treasurer of State to the Budworm Suppression Fund established by subsection 4.

§ 1015. Taxation

1. Method of calculation. The excise tax rate shall be calculated so as to provide revenues sufficient to pay the percentage of the total costs of spruce budworm suppression activities and spray projects for each year in which the Legislature has determined that a portion of the costs shall accrue from excise taxes on softwood and mixed wood within the Spruce Fir Forest Protection District. Each acre of forest land shall be subject to such tax, provided that each acre classified as mixed wood shall be taxed at half the rate for acres of softwood and that no acre classified as hardwood shall be subject to taxation under this subchapter.

2. Tax rate. The excise tax on parcels of softwood forest land shall be 56¢ per acre for the year 1976. The excise tax on parcels of mixed wood forest land shall be 28¢ per acre for the year 1976.

3. Municipal assessors certification to the State Tax Assessor. The assessors of each municipality within the Spruce Fir Forest Protection District shall, on or before the first day of September, 1976, and on the anniversary date thereof in each of the 5 years thereafter for which an excise tax is in effect, certify to the State Tax Assessor the name and address of each owner of forest land within that town, based on its April 1, 1976, status for the tax year 1976, and its April 1st status in each of the 5 years thereafter, classified as forest land pursuant to Title 36, chapter 105, subchapter II-A, section 573, subsection 3 and the hardwood, mixed wood and softwood land acreage of each such parcel.

4. Determination of tax; notice to owners. The State Tax Assessor, on or before the first day of June, 1976, and on the anniversary date thereof in each of the 5 years thereafter for which an excise tax is in effect, with respect to the unorganized territory, and the first day of November, 1976, and on the anniversary date thereof in each of the 5 years thereafter for which an excise tax is in effect, with respect to municipalities within the Spruce Fir Forest Protection District, shall determine the amount of excise tax on the owner or owners of each parcel subject to taxation, based on the wood classification of the land on April 1st, 1976, for the tax year 1976, and on April 1st in each of the 5 years thereafter for the purpose of determining the amount of such tax for such tax year, and shall give notice thereof to the owner or owners upon whom the tax is levied or to their authorized agents by a mailing to the owner at the address shown on the tax records. Notice hereunder shall be presumed complete upon mailing.

5. Due date; payment to State Tax Assessor. The tax determined pursuant to subsection 4 shall be payable on or before the 31st day of July, 1976, and on the anniversary date thereof in each of the 5 years thereafter for which an excise tax is in effect, with respect to the unorganized territory, and on the 31st day of December, 1976, and on the anniversary date thereof in each of the 5 years thereafter for which an excise tax is in effect, with respect to municipalities, to the State Tax Assessor.

6. Interest and penalty. Any such tax which is not paid when due shall accrue interest at the rate of 8% per year on the unpaid balance from time to time until paid and the person or persons subject to such tax, if not paid within 30 days of the due date, shall be liable for a penalty of $25 or 10% of the unpaid tax, whichever is greater, in addition to the tax and interest due thereon.

7. Lien. There shall be a tax lien on all forest land owned by the person subject to this excise tax to secure the payment of all sums due hereunder,

t shall be enforced in the manner provided by Title 36, sections 1282 1283.

Collection by Attorney General. Whenever any owner or owners of forest land shall fail to pay any tax, interest and penalty due under this apter within the time provided, the Attorney General shall enforce pay- by civil action against the owner or owners for the amount of such he interest and penalties thereon, and costs in either the Superior or ict Courts in Kennebec County or the judicial division in which such r has a residence or established place of business.

6. Designated spray areas

Designation. The State Entomologist shall, not later than April 1, and not later than October 15, 1976, and on the anniversary date of in each of the 4 years thereafter, designate the areas of the State which it is in his judgment necessary to apply chemical, biological or material in order to suppress and control spruce budworm infestations. designations made by the State Entomologist shall be on the basis of compiled for the Bureau of Forestry, including but not limited to egg counts, evidence of defoliation, tree vigor, timber cruises, photography similar information. The State Entomologist shall provide forest land rs in the Spruce Fir Forest Protection District with an opportunity to it their recommendations and any information in support thereof with ct to what areas should be designated. The State Entomologist shall ally prepare maps showing the areas designated for spraying by him e following year by the dates first stated above and shall report in ng the number of acres in each township designated for spraying.

Notice. Within 10 days of the preparation of the maps and reports red by subsection 1, the State Entomologist shall cause to be pub- l in the state paper and such other newspapers as he deems appropriate, e of the designation of the spray areas pursuant to this section. The e shall state that the designation is complete, shall indicate locations e area maps will be available for inspection and where further informa- may be obtained, and shall provide information concerning withdrawal dures pursuant to sections 1017 to 1019.

7. Automatic withdrawals

Conditions. Any person owning, or claiming rights in timber or land n the Spruce Fir Forest Protection District and subject to taxation here- may, by April 25, 1976, for the 1976 spray project, and within 30 days ublication of notice as provided for by section 1016, subsection 2 in each years thereafter, apply in writing to the State Entomologist for the awal of not less than 500 acres nor more than 1,000 acres. Each owner mant shall be entitled to but one withdrawal pursuant to this section acres so withdrawn must be contiguous.

Consent. Applications made pursuant to subsection 1 shall be granted e State Entomologist when he is satisfied that the information con- in the application is complete, truthful and accurate. In the event e is not so satisfied within 30 days after submission of an application, ll be deemed denied, and the State Entomologist shall state his reason nial in writing to the applicant. Upon the granting of an applica- the State Entomologist shall notify the State Tax Assessor.

Tax exemption. Lands withdrawn pursuant to this section shall not be ct to taxation under this subchapter for the years in which such with- l is accepted. The State Entomologist shall certify on or before May 1, and on or before December 31, 1976, and on the anniversary date thereof ch of the years thereafter, to the State Tax Assessor the acreages and rs exempt from taxation under this section.

8. Silvicultural treatment designation

Conditions. Any person owning or claiming rights in timber on land n the Spruce Fir Forest Protection District and subject to taxation nder may, by April 25, 1976, and not later than September 15, 1976, and e anniversary date thereof in each of the years thereafter, apply in g to the Director of the Bureau of Forestry for designation of con- us parcels of land of not less than 500 acres as silvicultural treatment Designation as a silvicultural treatment area shall be granted only the submission and approval of a plan for the area which provides for doption of silvicultural practices designed to minimize susceptibility ulnerability to future spruce budworm infestations as those practices fined by the rules.

Consent. Applications made pursuant to subsection 1 may be granted, nted conditionally, by the director when he is satisfied that the informa- ontained in the application is complete, truthful and accurate and that lan submitted conforms with the rules relating to such designation. e event that the director is not so satisfied within 60 days after the ission of the application, it shall be deemed denied and the director state his reasons for the denial in writing to the applicant.

Tax exemption. Lands designated by the director pursuant to this n shall be exempt from taxation under this subchapter so long as they such designation. For applications for designation made by April 76, if acceptance occurs after the tax imposed by this subchapter has been paid, the Treasurer of State shall rebate such tax payments out of the Budworm Suppression Fund. Such parcels shall be exempt from taxation pursuant to this subchapter so long as they retain the designation. In the event that the director finds that the owner or claimant is in noncompliance with the terms upon which the application was granted, then an amount equal to the tax, interest and penalty as provided for in section 1015, subsection 6, for each year the parcel was designated as a silvicultural treatment area shall immediately become due and payable and his land shall be subject to a lien as provided for in section 1015, subsection 7.

§ 1019. New market withdrawal

1. Conditions. Any person owning or claiming rights in timber on land designated for spraying pursuant to section 1016 may by November 15, 1976, for the 1977 spray project and within 30 days after publication of the notice as provided for by section 1016, subsection 2, in each of the years thereafter, apply in writing to the Director of the Bureau of Forestry for withdrawal from the designated spray area of contiguous parcels of land of not less than 1,000 acres as a new market withdrawal. Each such application shall contain a plan for harvesting the parcel. No application shall be approved unless the harvesting plan complies with the standards for designation as a silvicultural treatment area and the volume of spruce and fir wood harvested, which is other than sawlogs, is sold directly or indirectly to a new market.

2. Consent. Applications made pursuant to subsection 1 may be granted, or granted conditionally, by the director when he is satisfied that the information contained in the application is complete, truthful and accurate and that the plan submitted conforms with the rules relating to new market withdrawals. In the event that the director is not so satisfied within 30 days after the submission of the application it shall be deemed denied and the director shall state his reasons for the denial in writing to the applicant.

3. Escrow account.

A. Account established. There is established a separate account within the Budworm Suppression Fund to be known as the New Market Escrow Account. Upon the granting of an application under this section, an amount equal to the rebate provided hereunder for completion and acceptance of the operation which is the subject of such application, shall be transferred from the Budworm Suppression Fund established by 1014, subsection 4, to the New Market Escrow Account. All tax revenues received pursuant to this subchapter attributable to parcels of land which have been designated as new market areas shall be deposited in the New Market Escrow Account. Within 6 months of completion of the harvest operation incorporated in the plan which is part of an application granted, the applicant shall notify the director in writing of its completion. As soon thereafter as may be practicable, the director or his designee shall enter and inspect the area of operations. In the event that the director finds that the area has been harvested in accordance with the terms upon which the application had been granted and the rules hereunder, then he shall authorize the Treasurer of the State to rebate to the applicant an amount equal to the nonfederal share per acre for the year in which the application was made, and an amount equal to the excise tax paid in for each subsequent year prior to completion and acceptance for each of the years thereafter up to and including the year of the acceptance by the director of the completed harvesting operations, for each acre in the parcel which was the subject of the application plus interest as earned on the amounts rebated. For the years following completion and acceptance of the operation, the parcel shall be exempt from taxation under this subchapter. In the event that the committee finds that the area has not been harvested on or before April 1, 1981, in accordance with the application or its rules, then the parcel of land which is the subject of the application shall be deemed to have failed to comply with the rules and to be ineligible for a rebate. In the event of termination pursuant to section 1021, subsection 5, all moneys paid into this account will be rebated to each applicant in the amount which would have been paid if the operation had been completed and accepted by the director on the date of termination. On April 2, 1981, all funds remaining in the escrow account shall be merged into the Budworm Suppression Fund.

B. Federal cooperation. For any year during which the Government of the United States certifies in writing by its Chief, United States Forest Service, that it will assist in providing rebates pursuant to this section, the rebate provided for by subsection 3, paragraph A, shall have added thereto an amount equal to the per designated spray area acre contribution to the Budworm Suppression Fund made by the Government of the United States for the year in which the application was made.

§ 1020. General conditions for withdrawals

1. Forms. All applications for withdrawals and designations pursuant to sections 1017-1019 shall be made on forms prepared under the supervision of the director and shall contain the following informations:

A. The number of acres which are the subject of the application;

B. The timber types thereon;

C. Their location on maps of the same size and scale as those accepted

by the State Tax Assessor in the administration of the Tree Growth Tax Law;

D. Statement of ownership rights therein;

E. Written authorization from each owner of, or claimant to, an interest therein, other than owners of utility rights of way and mortgagees;

F. Such other information relating to the suitability of the parcel for withdrawal or designation as the director may require, including, but not limited to the age of the stands within the acreage, the timber volumes to be removed, the budworm hazard classes of the stand therein, management plans therefor and the basis for the application for withdrawal or designation; and

G. In the case of applications for parcels of land within townships or portions of townships which are held in common and undivided ownership, the owners of a controlling interest in the parcel shall have the power to make applications authorized under this subchapter and the decisions of the director shall be binding on all owners of interests therein.

2. Limitations. The director shall not accept nor shall he consider any application for withdrawal or designation pursuant to sections 1017-1019 for any acre of land for which withdrawal or designation pursuant to any other of the aforementioned sections already has been granted.

3. Prohibition. No parcel of land for which withdrawal or designation has been granted pursuant to sections 1017-1019 shall be sprayed with insecticides by the Bureau of Forestry for the purpose of suppressing spruce budworm populations at any time following the grant, except following a finding by the director that the land has not been operated in accordance with an application or its rules, or as provided in subsection 4 or in section 1023, subsection 4.

4. Petition. A landowner who determines that, notwithstanding the implementation of a plan accepted by the director, there exists a need for the application of insecticides, may petition the director for inclusion in future spray projects. In the event that the director accepts the petition, the applicant shall be assessed for excise taxes due for the year in which the application for exemption was made and each year thereafter. The director shall reject any petition made for the purpose of evading penalties for which the applicant might otherwise be liable for failure to comply with a plan submitted pursuant to sections 1018 and 1019 or the rules pertaining thereto.

§ 1021. Duties and authority of the Director of the Bureau of Forestry

1. General. He shall coordinate the activities of the State Entomologist, the Forest Insect Manager and the Entomology/Service Foresters. He shall render all assistance practicable to the foregoing persons and the Committee on Spruce Fir Silviculture.

2. Rules. From time to time he shall adopt and amend rules for the implementation of this subchapter consistent with section 1023. He shall hold public hearings, with reasonable notice to the public, upon proposed rules or amendments thereto, and shall issue orders setting out such rules. He shall give public notice by certifying a copy of such orders to the Secretary of State and in such other manner as may be reasonable.

3. Applications. He shall consider applications made pursuant to sections 1018 and 1019 and grant, conditionally, or deny such applications.

4. Reduction. In the event that the director determines that the total number of acres remaining within the spruce fir forest type after applications have been made is not sufficient to provide the amount of wood necessary to meet the reasonably foreseeable future need for spruce and fir in the State of Maine, then he may reduce the acreage included in each otherwise acceptable application made pursuant to sections 1018 and 1019 in equal portions so that the total number of acres withdrawn does not exceed the number he deems necessary to supply such wood.

5. Declaration of termination of infestation. Upon receipt of satisfactory information to the effect that the severity of the infestation of spruce budworm has declined to the extent that no spray program will be beneficial or cost effective in all of the years remaining during which this Act is in effect, he shall report the same to the Commissioner of Conservation and the Governor, and shall recommend to the Legislature that it declare a termination of infestation.

6. Markets and utilization. He shall have the authority to conduct and contract for research relating to the marketing and utilization of wood resources which are or may be affected by spruce budworm infestation.

7. Entry and inspection. The director or his duly authorized representatives may enter, upon reasonable advance notice to the land owner, at any reasonable time in a reasonable manner, any tract of land for which application pursuant to sections 1017-1019 has been made or granted in order to inspect the same free of any charge or cost imposed by the owner or his agents, to assure compliance with the rules and orders of the director.

8. Inspection. The director or his duly authorized representatives may likewise inspect the books and records of any applicant with respect to any information set forth in an application or verification thereof. He also may require periodic progress reports from applicants in connection with his verification procedures.

§ 1022. Committee on Spruce Fir Silviculture

1. Committee created. To perform the duties specified in this subchapter, there is established a Committee on Spruce Fir Silviculture.

2. Membership. The committee shall consist of 5 citizens of the State of Maine, at least 3 of whom shall be foresters who are knowledgeable as to commercial forest land management. They shall be appointed for a term of 2 years each by the Commissioner of Conservation with the advice and consent of the Governor. Each member shall be entitled to his actual expenses and $50 per diem to be drawn from the Budworm Suppression Fund. They shall be subject to removal for cause by the commissioner with the approval of the Governor.

3. Duties. The committee shall carry out the following duties:

A. Chairman. Elect one of its members to serve as chairman for the year in which the election is conducted;

B. Rules. Approve the rules to be issued pursuant to sections 1021 and 1023;

C. Appeals. Determine appeals as provided in section 1028, subsection 2; and

D. Advise. Provide advice and consultation to the Director of the Bureau of Forestry with respect to the subject matter of this subchapter.

§ 1023. Rules relating to silviculture

1. Purpose. The director shall adopt, and may from time to time amend and repeal, subject to the approval of the Committee on Spruce Fir Silviculture, rules to carry out the purposes of this subchapter, including, but not limited to, rules relating to the qualifications of parcels of forest land for silvicultural treatment designation and new market withdrawal consistent with the provisions of sections 1018 and 1019. The purpose and scope of such rules shall be to reduce the vulnerability and susceptibility of the Maine spruce fir forest to spruce budworm depredations, to reduce the economic losses to the State of Maine from such depredations as do occur, and to assure future supplies of spruce and fir. Such rules shall establish standards for forest management, including, but not limited to, timber stand improvement and harvesting, in accordance with sound silvicultural principles. Economic considerations as well as all other relevant considerations shall be taken into account in determining such rules. The director shall promulgate only those rules directly related to the foregoing purposes. In particular, it is not the intent of this subchapter to regulate operational techniques including, but not limited to, road layout and construction, equipment use and erosion control.

2. Silvicultural designation rules. The director shall adopt rules relating to the eligibility of parcels of land for designation as silvicultural treatment areas to fulfill the objectives of subsection 1, including, as appropriate:

A. Standards for cutting by selection, shelterwood, clearcutting and such other methods as the director may allow, including, but not limited to, the number of cuts, diameters, and volumes under reasonable classifications of site conditions;

B. Minimum standards for seed tree retention, including the number and location per acre under reasonable classifications of cutting methods and site conditions; and

C. Silvicultural practices reasonably related to the alteration of stand composition and the thrift and vigor of the resulting stand.

3. New market withdrawal rules. The director shall adopt rules relating to the eligibility of parcels of land for new market withdrawal, including:

A. Minimum standards for volumes per acre which shall be removed over a period not to exceed 5 years; and

B. Standards as provided for by subsection 2.

4. Spraying rules. The director may make rules requiring the mandatory inclusion of parcels within the designated spray area when in his judgment such action is necessary because of the intensity of the infestation, or because it would be excessively costly or logistically difficult to avoid applying insecticides and for like reasons.

5. Verification. The director also may make rules for verification of compliance with the rules promulgated hereunder.

§ 1024. Forest Insect Manager

1. Position created. There is established within the Bureau of Forestry the position of Forest Insect Manager. Such position shall not be subject to

Personnel Laws and shall terminate upon the expiration date hereinafter ided for by this Act. The manager shall be appointed by the Director Bureau of Forestry with the approval of the Commissioner of Conserva- nd may be removed by the director with the approval of the commis- r. He shall be directly responsible for the development, coordination and mentation of policies and programs of the State of Maine as they relate e control and suppression of the spruce budworm epidemic.

Contractual authority. He shall have the authority to enter into and ister contracts for the acquisition of chemicals, aircraft, personnel serv- nd other goods and services necessary to carry out spruce budworm sup- ion operations, subject to the provisions of Title 5, chapters 145 and 155.

Spraying services. He shall have the authority to enter into and ad- ter contracts to spray with insecticides or similar materials parcels of e-fir forest land outside the designated spray area upon application for rovision of such services by the owner of such parcel, provided that:

Such application is submitted by April 25, 1976 for inclusion in the 76 spray project and within 30 days of the notice provided for by section 16, subsection 2, for inclusion in spray projects in subsequent years;

He is satisfied that the area for which the application is made can nefit from such spraying and that spraying is practical;

The applicant enters into a contract with the Bureau of Forestry to y the actual per acre cost to the bureau to spray such land, less any nount which may be provided by the Government of the United States d less the amount of any excise tax paid or assessed under this subchapter such parcel for the year in which spraying actually takes place.

st land under such contracts shall be included in Maine's spruce bud- n suppression program.

Executive Director.

He shall serve as Executive Director of the Committee on Spruce Fir lviculture and carry out such duties as the committee may assign to him.

He shall certify to the State Tax Assessor on December 31, 1976, and the anniversary date thereof in each of the 4 years thereafter, the specific reages, their locations, and owners exempted by the director from liability excise taxes pursuant to sections 1017-1019.

He shall certify any parcels which the director has found to be in non- pliance with an accepted application or its rules and, therefore, liable axation and penalties, and any parcels which are liable to taxation pur- nt to section 1020, subsection 4.

Cooperation. He shall consult with and cooperate with the United s Forest Service, the federal government of Canada, the governments of Provinces of Quebec and New Brunswick and public and private land rs in Maine in developing joint research and operations projects to con- nd suppress spruce budworm infestations and on related matters.

25. Service Foresters

Positions created. There are established within the Bureau of For- 2 positions to be known as Entomology/Service Foresters. They shall ppointed by the Director of the Bureau of Forestry subject to the Per- el Law.

Duties. Entomology/Service Foresters shall serve under the direction e director. Their primary duty shall be to render advice and assistance e land owners within the spruce fir forest area of the State with respect rest management, including salvage, silviculture, utilization, marketing related matters as they pertain to the spruce budworm infestation. They also conduct such inspections and make such reports to the Forest t Manager as the director may authorize and carry out other duties ned to Service Foresters.

16. Other state and municipal agencies

Withdrawal. The chief executive officer of any state agency, authority, nission or that of any county or municipality, may withdraw any land n the ownership or control of such agency from the designated spray upon application to the director in the form provided for by section 1020, ection 1, on or before April 1, 1976, and within 30 days after notice pur- t to section 1016, subsection 2 thereafter.

Research on public lands. The commissioner or director of any agency e State of Maine with jurisdiction over public land may make the land able on such terms and conditions as he deems reasonable to any public ivate nonprofit entity engaged in spruce budworm control research and d silvicultural research. The Forest Insect Manager shall likewise en- ge private land owners within the State to make their lands available e same purposes.

7. Research

The Department of Conservation may make grants of up to $100,000 a year, in the aggregate, upon such terms and conditions as the commissioner deems reasonable out of funds available pursuant to section 1014, subsection 4, for the following purposes:

1. Forest management. The development of forest management strategies, consistent with sustained yield, which limit opportunities for increases in spruce budworm populations;

2. Insecticides. The development of new and safer biological and chemical control methods which reduce or eliminate budworm populations as well as tree mortality;

3. Combinations. The combination of the purposes provided for by subsections 1 and 2 into an effective long term spruce and fir regional forest and insect management system to realize the forest potential, including timber, water, wildlife and recreation of the region at a minimum cost; and

4. Marketing and utilization. The development of uses and markets for spruce and fir timber.

§ 1028. Appeals

1. Abatement. Any owner or claimant aggrieved by the action of the State Tax Assessor in determining the tax on owners of such forest lands, through error or mistake in calculating the same, may apply for abatement of any such excessive tax within 60 days of the notice of such tax, and if upon reexamination, the tax appears to be excessive through such error or mistake, the State Tax Assessor may thereupon abate such excess.

2. Appeal. Any person aggrieved by any final action of the director or the State Entomologist under this subchapter may take an appeal therefrom within 30 days of the date of such action to the Committee on Spruce Fir Silviculture and the committee may amend or reaffirm such action in accordance with this subchapter and may order such remedial action as is appropriate, including a refund in whole or in part of any taxes, interests or penalties which have been erroneously or unjustly paid. If the committee fails to give written notice of its decision within 90 days of the filing of such appeal, the appeal shall be deemed to have been denied, and the appellant may appeal as provided unless the appellant shall in writing have consented to further delay. The appeal to the committee shall be filed with the Director of the Bureau of Forestry. The committee may adopt reasonable rules relating to the conduct of proceedings under this subsection.

3. Appeal to Superior Court. Any party may appeal from the decision of the Committee on Spruce Fir Silviculture to the Superior Court in accordance with the Maine Rules of Civil Procedure, Rule 80B.

Sec. 4. Appropriation. There is hereby appropriated from the General Fund the sum of $3,559,000 to be credited to the Budworm Supression Fund and to be expended by the Bureau of Forestry for spruce budworm suppression and control. Any unexpended balance of this appropriation and funds previously appropriated by private and special law 1973, chapter 194 or public law 1975, chapter 162 shall not lapse, but shall remain a continuing carrying account for these purposes. The breakdown shall be as follows:

FORESTRY, BUREAU OF

	1975-76	1976-77
Personal Services	$ 15,000	$ —
All Other	2,803,400	690,600
Capital Expenditures	50,000	—
	$2,868,400	$690,600

Sec. 5. Appropriation. There is appropriated from the General Fund to the Bureau of Forestry the sum of $138,000 to be credited to the Budworm Suppression Fund to be expended by the Bureau of Forestry to provide for a Forest Insect Manager, the expenses and allowances of the Committee on Spruce Fir Silviculture and research grants pursuant to section 1026. The breakdown shall be as follows:

FORESTRY, BUREAU OF

	1975-76	1976-77
Personal Services	$ 4,000	$28,000
All Other	101,000	5,000
Capital Expenditures	—	—
	$105,000	$33,000

Sec. 6. **Appropriation.** There is appropriated from the General Fund to the Bureau of Taxation the sum of $18,400 to administer the excise tax. The breakdown shall be as follows:

TAXATION, BUREAU OF

	1975-76	1976-77
Personal Services	(1) $ 2,400	(1) $10,500
All Other	2,500	3,000
	$ 4,900	$13,500

Sec. 7. **Exclusive authorization.** It is the intent of this emergency legislation authorization that the budworm suppression program proceed as promptly as possible and that any requirements which may exist for the approval of this program by any other State agency are hereby superseded, except for the requirements imposed by Title 22, section 1454, which are not superseded.

Sec. 8. **Transitional provisions.** This Act shall take effect in accordance with its emergency clause, except that section 1019 shall take effect on July 1, 1976 and section 1014, subsection 6, shall take effect on August 1, 1977. Parcels of land for which applications are made pursuant to section 1018 prior to April 25, 1976, will be neither approved nor denied by the director until October, 1976. However, no area for which application has been made pursuant to section 1018 prior to April 25, 1976 shall be sprayed with insecticides by the Bureau of Forestry in 1976. The Commissioner of Conservation shall nominate 5 citizens for membership on the Committee on Spruce Fir Silviculture no later than April 25, 1976, and the Director of the Bureau of Forestry shall have adopted and the committee shall have approved an initial set of rules relating to the subject matter of section 1023 no later than August 1, 1976.

Emergency clause. In view of the emergency cited in the preamble, this Act shall take effect when approved. It shall expire on December 21, 1981.

Effective April 15, 1976

Appendix B

INFORMATION SOURCES ON SPRUCE BUDWORM

From Maine Forest Service (State House, Augusta, Maine 04333)

Information on current spray plans

Silvicultural rules and related forms and applications.

Annual reports on budworm projects and proposals.

From U. S. Forest Service

1975 Cooperative Pilot control project...August 1976.

Annual Review of Forest Insects and Disease Conditions. U. S. Forest Service, Northeastern Area State and Private Forestry, (6816 Market Street, Upper Darby, PA)

Toward Integrated Control, Proc. 3d Annual Northeastern Forest Insect Work Conference. USFS Northeastern Forest Experiment Station, Research Paper NE-194, 1971. (6816 Market Street, Upper Darby, P.A.)

Final Environmental Statement, 1976 Maine Cooperative Spruce Budworm Suppression Project.

McKnight, M.E. A Literature Review of the spruce, western, and 2-year cycle budworms, USFS Rocky Mountain Forest and Range Experiment Station, Research Paper RM-44, 1968. (240 West Prospect Street, Fort Collins, Colorado 80521)

From Forestry Extension, (Nutting Hall, University of Maine, Orono, Maine)
Ashley & Stark, Photo field guide for on-the-ground evaluation of spruce budworm damage...

Spruce budworm control for small landowner.

Proceedings of a Symposium on the Spruce Budworm.

Environment Canada. 1975. (Price US $18.00, Ottawa: Information Canada, Ottawa, Canada K1A 0S9)

General References

Corcoran & Simmons, Computer based bibliography on Spruce Budworm. UMO School of Forest Resources Tech. Notes No. 58, January 1976.

Brown, C.E. Cartographic Representation of spruce budworm infestation. 1909-1966. Canadian Forest Service Publication 1263, 1970. Ottawa

General References Continued

Kingsbury, P.D. A History of the effects of aerial forest spraying in Canada on aquatic fauna. Chem Control Res. Inst., Ottawa, Report CC-X-117, Feb. 1976.

Miller, C.A. The spruce budworm in eastern North America. Proc. Tall Timbers Conf. on Ecological Animal Control by Habitat Management. Feb. 25-27, 1971.

Macdonald, D.R. Biological interactions associated with spruce budworm infestations. In Ecological effects of nuclear war, Brookhaven National Labs. BNL 917 (C-43), 1965.

Blais, J.R. Control of spruce budworm: current and future strategies. Bull. Ent. Soc. Amer. 19(4): 208-13, Dec. 1973.

Blais, J.R. The policy of keeping trees alive via spraying may hasten the recurrence of spruce budworm outbreaks. For. Chron. 50(1), Feb. 1974.

Special issue of Forestry Chronicle, v. 51(4) Aug. 1975, has valuable papers on budworm and its control.

Mattson & Addy, Phytophagous insects as regulators of forest primary production. Science 190:515, 7 Nov. 1975.

Westveld, Forest management as a means of controlling the spruce budworm. J. Forestry 44:949-953, 1946.

McLintook, T.F. Silvicultural practices for control of spruce budworm. J. Forestry 45:655-658, 1947.

Canadian Forest Service, Annual Forest Insect and Disease Survey. Ottawa.

Bakuzis & Hansen, Balsam fir--A Monographic Review. (Minneapolis: U. of Minnesota Press, 1965.)

Holling, Jones & Clark, Ecological policy design: Lessons from a study of forest/pest management. U. of British Columbia, Institute of Resource Ecology, report R-6-B. May 1976.

Morris, R.F. ed. The Dynamics of Spruce Budworm Populations. Memoirs of the Ent. Soc. of Canada, No. 31, 1963. (Classic treatise reporting long-term study at Green River, N.B.)

National Academy of Sciences, Pest Control: An Assessment of Present and Alternative Technologies.

--vol. I. Contemporary Pest Control Practices and Prospects.
--vol. IV. Forest Pest Control (an excellent review)
Washington, 1975.

Prebble, M.L. ed. Aerial Control of Forest Insects in Canada Dept. of the Environment. from Information Canada, OHawa, LIA 059, $18.00.

Proceedings of a Symposium on the SBW. USDA-Forest Service Misc. Publ. 1327, 1976. U.S. Government Printing Office, Washington D.C. 20402, $3.15. Stock No. 001-000-03576-2.